

CORRECTIVE ACTION PROGRAM

ADDRESSING GROUND WATER CONTAMINATION FROM LEAKING LANDFILLS

The Virginia Department of Environmental Quality regulates the remediation, or cleanup, of ground water aquifers contaminated by solid waste landfills. DEQ's Corrective Action Program ensures that cleanup efforts protect human health and the environment, and achieve ground water cleanup goals.

Ground water cleanup

Cleanup requirements for ground water contaminated by solid waste landfills are defined in Virginia's solid waste management regulations for two categories of landfills: landfills that stopped receiving waste before December 21, 1988, and permitted landfills operating after that date.

Landfills closed before December 1988

Landfills that stopped accepting waste before December 21, 1988, did not have to install ground water monitoring wells or investigate their impact on ground water quality. This category of landfill sites may have included those with a valid permit, landfills with permits revoked in the past or those that may never have operated under a permit. If a landfill negatively affects ground water as a result of other environmental problems (including landfill gas emissions or surface water impacts), ground water cleanup can still be required under Virginia's regulations if contamination is above that allowed under the federal Safe Drinking Water Act. No solid waste landfill is allowed to create open dump conditions, which are forbidden under the federal Resource Conservation and Recovery Act and Virginia's solid waste management regulations.

If contamination above federal standards has been noted, the landfill owner must undertake a series of defined actions similar to those for permitted landfills operating after December 1988. However, major differences to the corrective action process include the following:

- +DEQ performs an initial site evaluation to determine additional action that may be needed. Actions may include a full site cleanup, removal of the buried wastes along with partial site cleanup or recognition that no further action is needed.
- +If full or partial site cleanup is required, the cleanup is completed under an administrative order, judicial order or other mechanism.
- +Public hearings, other than those that may be associated with an administrative or judicial order proceeding, are not required.

Permitted landfills operating after December 1988

Virginia's solid waste management regulations require that landfills that received solid waste after December 21, 1988, install ground water monitoring wells to monitor the landfills' impacts on ground water quality. If sample results are above natural or background levels, then site-specific ground water protection standards are established. These standards may be based on federal drinking water standards, natural background or other risk-based standards.

If continued monitoring indicates contamination above the ground water protection standards, a series of defined steps must occur under Virginia's Corrective Action Program:

- +The extent (or plume) of the ground water contamination must be defined by adding more monitoring wells.
- +The landfill owner must compare cleanup technologies to identify one that is most appropriate.
- +The landfill owner must hold a public meeting to discuss the results of these actions and gather public comment on the proposed cleanup method.
- +The landfill owner must give DEQ the results of the contamination study and cleanup technology comparison. DEQ reviews the submission for technical content and accuracy, and may require revisions.
- +The landfill owner must give DEQ a proposed corrective action plan detailing the cleanup. DEQ reviews the submission for technical content and may require revisions.
- +DEQ holds a public hearing to gather public comment on the proposed cleanup plan.
- +DEQ amends the facility's permit to incorporate the corrective action plan, and the landfill begins its cleanup effort.



Completion of cleanup

Landfills must show that contamination has not exceeded ground water protection standards for three consecutive years to complete the cleanup efforts. Landfills that normally sample ground water twice a year would thus be required to demonstrate six consecutive sample events showing that contamination has not exceeded the standards.

Obligations of the landfill owner

Virginia's solid waste management regulations require a landfill owner to notify all persons who own land under which ground water contamination has been identified. The landfill owner must also take any interim measures needed to remove an existing or potential risk to human health from exposure to contaminated drinking water wells. Interim measures may include installing whole-house carbon filtration units, providing bottled water or connecting to a municipal water supply.

Financial considerations

Who pays?

The landfill permit holder is responsible for ground water cleanup costs. For old, closed landfill sites that never received a permit, the current landfill property owner may be the responsible party, regardless of whether the owner possessed the property during its period of landfill activity. For landfill sites that operated without a permit, the completion of an environmental assessment before purchase of the land may protect the current landowner from paying for cleanup costs under the "innocent landowner" provision of federal hazardous waste laws.

Solid waste financial assurance requirements ensure that a landfill owner or operator will have the funds available to complete ground water cleanup. A landfill owner or operator subject to financial assurance obligations must provide an additional \$1 million of financial assurance to DEQ within 120 days of recognizing contamination above the ground water protection standards. When the ground water corrective action plan is implemented, the landfill owner or operator must demonstrate appropriate financial assurance proving the ability to pay for the cleanup during the entire time the remediation system is in place.

Bankruptcy

Filing for bankruptcy does not alter the requirement that a landfill owner or operator comply with environmental laws and regulations. A landfill owner must notify DEQ within 10 days of the beginning of a voluntary or involuntary bankruptcy proceeding, naming the owner/operator as debtor. If the provider of a financial assurance mechanism (bank, insurance company, surety) files for bankruptcy or its authority is revoked or suspended, an owner or operator is deemed to be without the required financial assurance and must re-establish financial assurance within 60 days.

Other funding sources

The Commonwealth does not have the equivalent of federal Superfund money available to initiate or continue ground water cleanup efforts at solid waste landfills where the owner/operator no longer has the financial means to do so. The Virginia Environmental Emergency Response Fund has money available for use in situations of environmental emergency, which may include temporary alternative water supplies. However, this fund is not set up as a grant funding source or low interest-rate loan source for long-term ground water remediation projects at landfill sites.

The Virginia Resource Authority provides funding for brownfield remediation projects through the Virginia Pooled Financing Program and the Virginia Clean Water Facilities Revolving Fund. Coordination with the Virginia Resources Authority is required to determine whether ground water remediation funding would be available to an insolvent landfill site.

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